T° HOLD ®
OPERATORS MANUAL

Medical Solutions, Inc.

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T° HOLD® Operators Manual

Congratulations on your selection of the Medical Solutions, Inc. (MSI) *T° HOLD*®*1000LS.* You have selected one of the components of our state-of-the-art Fluid Warming System, designed to maintain normothormic fluids for your patients. The use of the *T° HOLD*®, like all of the components of our proprietary System, helps reduce complications due to inadvertent hypothermia and increases patient safety and comfort. The MSI Fluid Warming System helps keep the patient warm from admission to discharge. We hope that both you and your patients enjoy the benefits of this exclusive technology.

Please read the entire Operators Manual before using the *T°HOLD*®1000LS.

1.0 INTENDED USE

The *T° HOLD*® is designed to hold, warm, and maintain 1000mL I.V. fluid bags at a temperature of 40°C (104°F).

2.0 PRODUCT DESCRIPTION

The *T° HOLD*® consists of two components: the Power Box and the Heater Plate. The Power Box can be mounted on an I.V. pole or bed rail or attached to a wall. The Heater Plate is designed to hang on an I.V. pole.
The I.V. fluid bag is hung from either hook at the top of the Heater Plate and the elastic strap holds the I.V. fluid bag in place. Two LED Indicators on the bottom of the Heater Plate illuminate when the Heater Plate is warming.

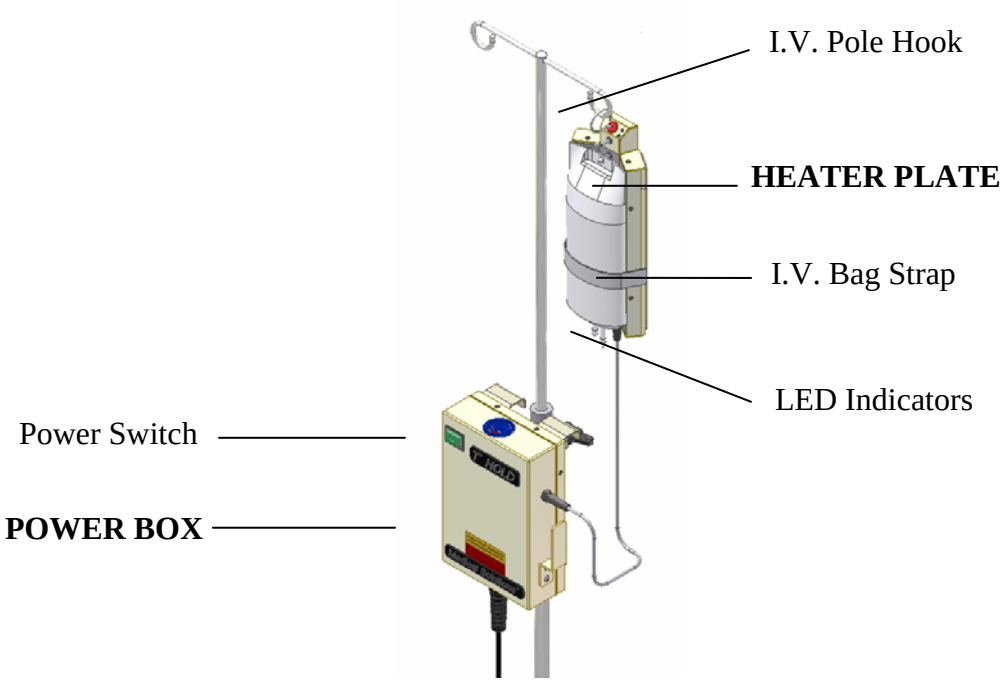


FIGURE 1 - GENERAL SET - UP

NOTE: Please review the I.V. fluid bag manufacturer's recommendations on the appropriate time and temperature for the fluid being warmed

2.1 Important Labels and Directions

The following labels are found on the *T° HOLD*®.

- Model/ Serial Number.
- Do Not Open.
- Electrical Shock Symbol.
- United States Patents.
- Made in the USA.
- Warning: Risk of Fire. Replace Fuse as Marked: 250V 2.0 AMP.
- Caution: Electrical shock hazard. Do not remove protective panel. Refer servicing to qualified personnel.
- Caution: Verify temperature of warmed items before use.
- Caution: Hot.
- Grounding Reliability.
- Danger: Risk of explosion if used in the presence of flammable anesthetics.
- Warming: Unit not intended for blood or blood products.
- Factory Pre-set and Locked at 40°C.
- MET and/or UL Listing.

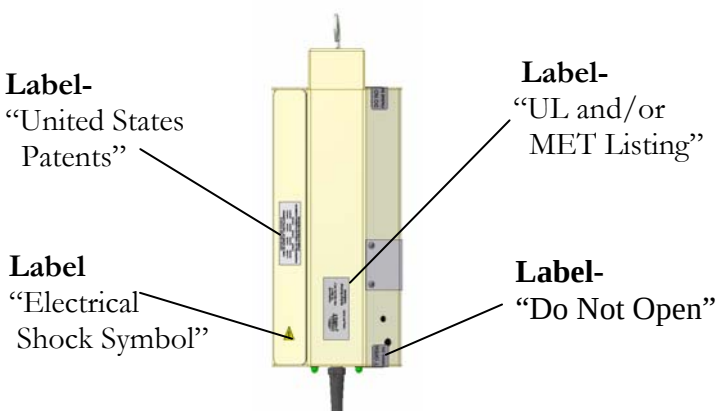


Figure 2B

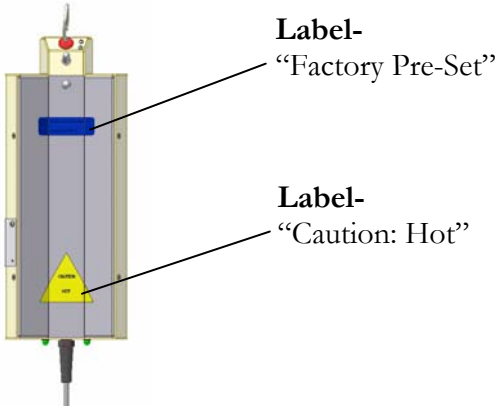


Figure 2B

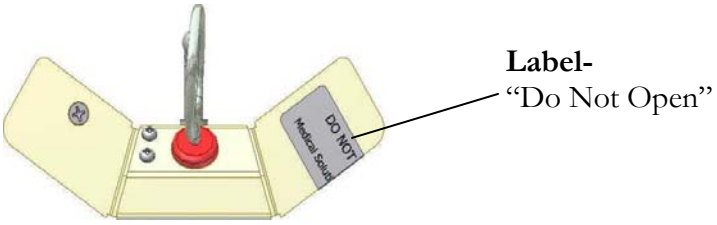


Figure 2C

FIGURE 2 - PRODUCTS LABELS (HEATER PLATE)

2.2 Important Labels Heater Plate and Power Box

Figure 3A - Front

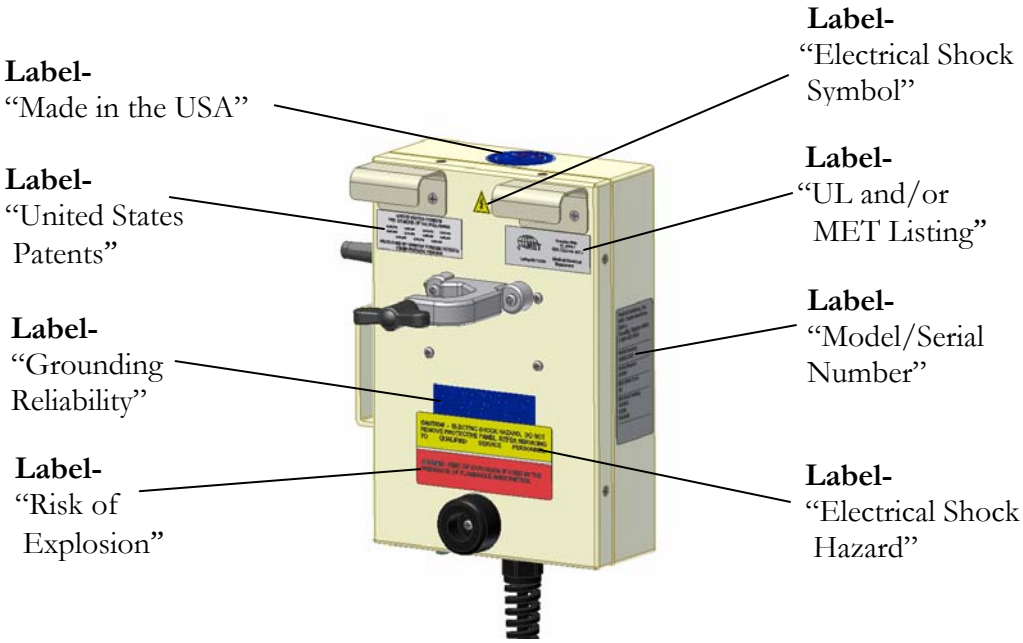


Figure 3B - Back

FIGURE 3 - PRODUCT LABELS (POWER BOX)

3.0 SPECIFICATIONS AND OPERATING INFORMATION

3.1 Specifications

Classification	Class 1
Dimensions: Power Box	10.00″ tall x 6.50″ wide x 3.00″ deep
Heater Plate	14.25″ tall x 5.00″ wide x 1.125″ deep
Heater Plate Capacity	1000 mL Industry standard IV fluid bags.
Mounting: Heater Plate Power Box	Hook for I.V. Pole I.V. Pole C-Clamp, Bed Rail Bracket or Wall Mount Bracket
Construction	Powder Coat Finish Aluminum
Factory Preset Set Point Temperature	40°C (104°F)

3.2 Storage and Operating Conditions

Storage Temperature	-40 to 80°C (-40 to 176°F)
Humidity Conditions	0 to 90% up to 40°C (104°F) non-condensing. 10 to 55% at 55°C (131°F) non-condensing.
Ambient Operating Temperature	-10 to 55°C (14 to 131°F)

3.3 Electrical Requirements

Power Requirements	120 VAC 60 HZ
Fused	250 VAC 2.0 AMP Time Delay
Amperage Consumed	1.09 AMPS
Heater Wattage	53 watts
Thermal Cutout Temperature	41°C (106°F) Automatic reset

4.0 OPERATING INSTRUCTIONS

1. Remove the *T° HOLD*® Heater Plate from its packaging.
2. Check the Heater Plate to ensure that all of the packaging material is removed.
3. Mount the Power Box to the I.V. pole support using the supplied C-Clamp.(Ref: Fig 4)
4. Hang the Heater Plate from the I.V. pole hook. (Ref: Fig 5A and 5B).

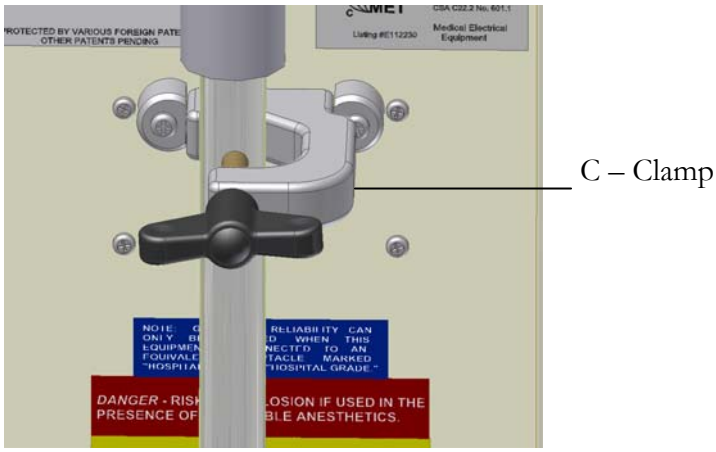


FIGURE 4 - I.V. POLE MOUNTING 1

5. After ensuring the power switch is "off" plug the power supply cord into an approved hospital grade outlet.
6. Place a 104°F pre-warmed bag from a Medical Solutions, Inc. fluid warmer (16N1®, Temp 1®, Temp 2®, Temp 3®, Heat Stack®) without the sterile over-wrap on the upper or lower hook so that the bag's ports are accessible below the Heater Plate.

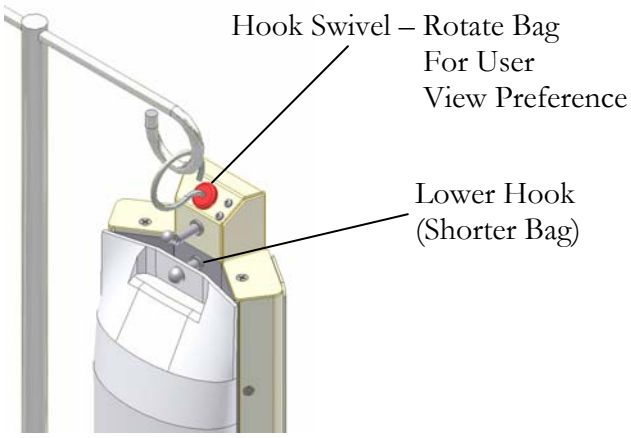


Figure 5A

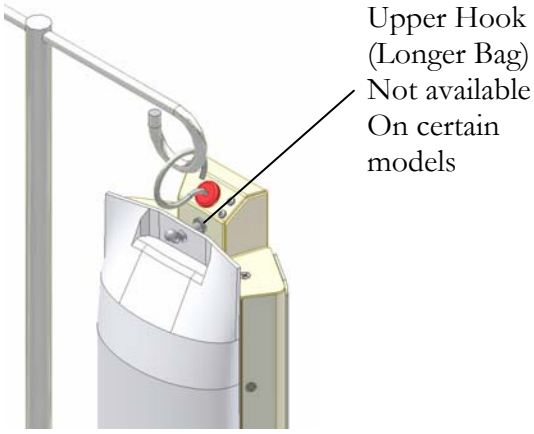


Figure 5B

FIGURE 5 - HOOK SWIVEL AND BAG MOUNTING 1

7. Pull the elastic strap across the fluid bag and secure by affixing the I.V. Bag Strap.
8. Turn the unit "on" by pressing the Power Switch. The switch and the LED indicators on the bottom of the Heater Plate will illuminate when energized. (Ref: Figure 1).

If fluid spills inside the Heater Plate or Power Box, unplug the unit to prevent an electrical shock hazard and refer to the Cleaning Instructions (Section 5.0).

5.0 CLEANING INSTRUCTIONS

1. Turn the main power "off" and unplug the *T° HOLD*® from the power source.
2. Wipe down the Heater Plate with a damp cloth using a general hospital cleaner (Isopropyl Alcohol) as needed, following the cleaner manufacturer's instructions for use.
3. If excessive fluid enters the Heater Plate, disconnect power to the unit and refer to qualified Bio- Med personnel for service.
4. Contact Medical Solutions, Inc., at 800-435-7600 for further instruction.

6.0 TROUBLESHOOTING

1. If the *T° HOLD*® fails to warm, check to ensure that:
   a) The power cord is plugged into an approved hospital grade outlet.
   b) The power switch is turned on at the Power Box with the Power Indicator Light illuminated. (Ref: Figure 6A).
   c) The green LED Indicators on bottom of the Heater Plate are illuminated. (Ref: Figure 6B).
2. If the Power Indicator Light is not illuminated please have a Bio Medical technician verify that the two fuses on the Power Box are functional. (Ref: Figure 3A).
3. If the power is "on" and the *T° HOLD*® fails to warm, please contact Medical Solutions, Inc. at 800-435-7600.

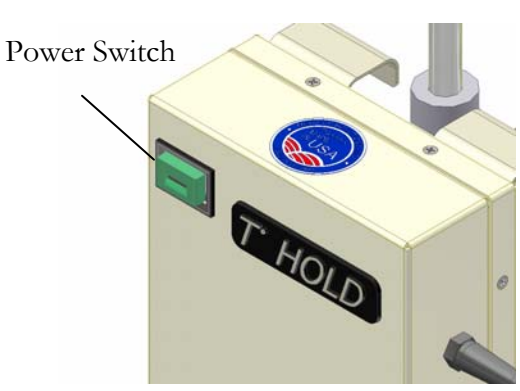


Figure 6A

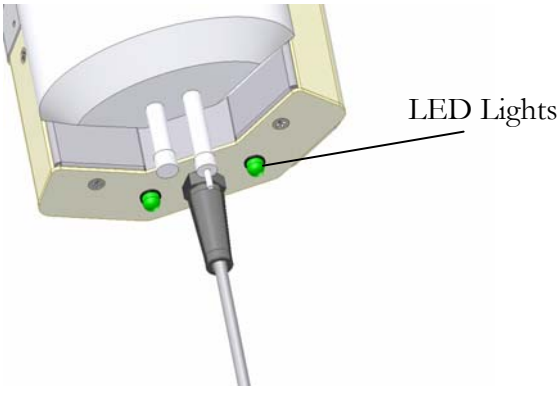


Figure 6B

FIGURE 6- POWER INDICATOR LIGHT AND LED INDICATORS

7.0 PREVENTIVE MAINTENANCE PLAN

The *T° HOLD*® temperature controller should be verified once every five (5) years). The following items are needed to accurately measure the bag temperature for verification:

- Fluke 51 II Digital Thermometer.
- 6.00˝ long .093˝ Diameter Type T Needle Thermocouple calibrated to the Thermometer.

To verify the temperature controller.

1. Pre-warm to 40°C (104° F) a 1000 ml I.V. fluid bag for the size *T° HOLD*® being calibrated to 40°C (104° F).
2. Remove the outer wrap from the fluid bag.
3. Pierce the bag through the needle injection port on the bag with an 18 ga needle to make it easier to insert the Thermocouple.
4. Place the bag into the *T° HOLD*® and secure the bag to the Heater Plate with the I.V. Bag Strap.
5. Insert the Thermocouple into the bag and position the probe in the center of the bag, both front to back and from side to side.
6. Turn on the *T° HOLD*®. Allow the unit to operate for a minimum of one (1) hour before verifying the temperature.
7. After the allotted time, the temperature reading on the Fluke Thermometer should be within one (1) degree Celsius (two [2] degrees Fahrenheit) of the factory preset temperature.
8. If the two temperature readings are within one degree (1) Celsius (two [2] degrees Fahrenheit) of each other, the temperature controller has been verified. If they are not, please contact Medical Solutions, Inc., at 800-435-7600.

8.0 ELECTRICAL SCHEMATIC

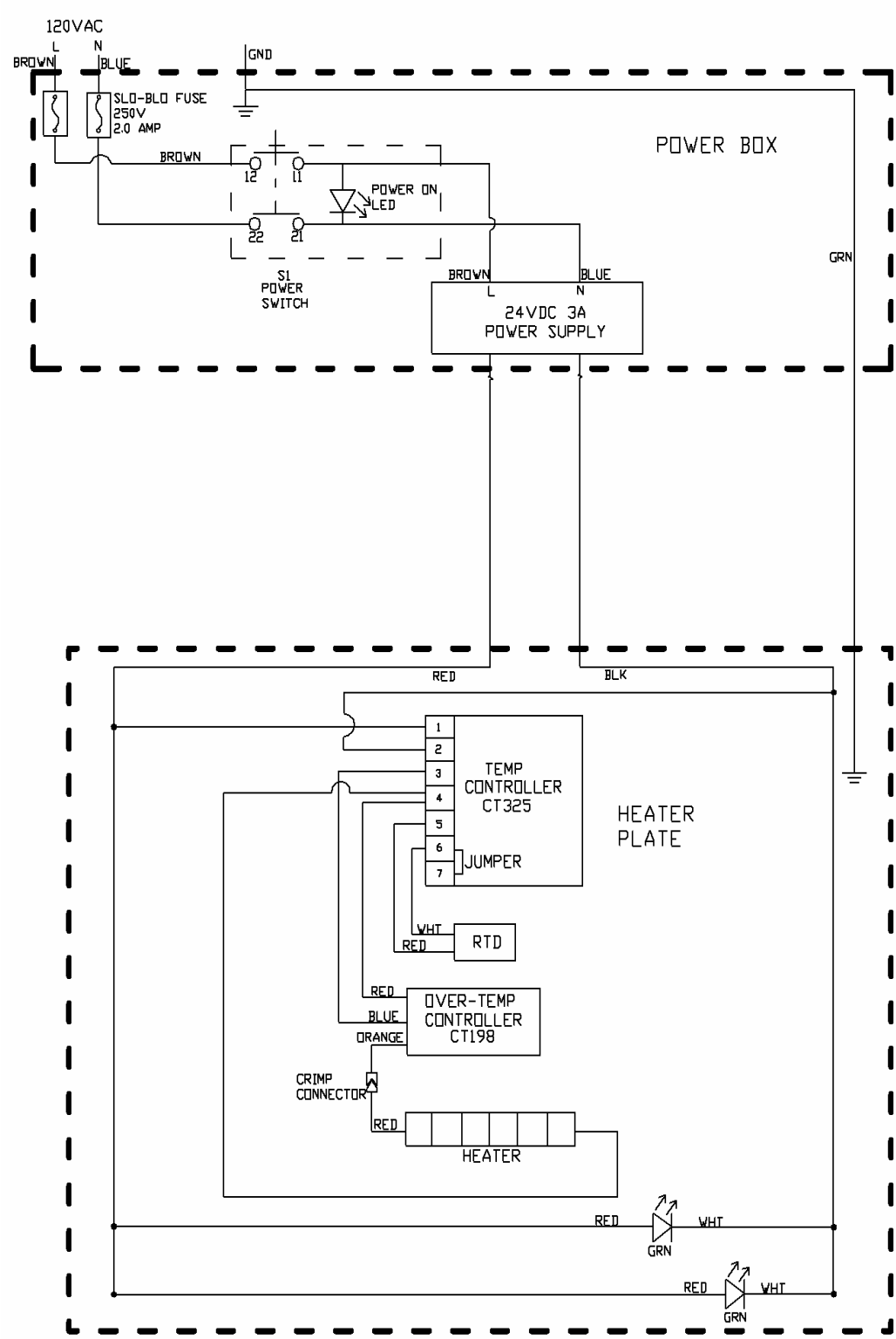


FIGURE 7- ELECTRICAL SCHEMATIC

APPENDIX A: LIMITED WARRANTY

For one year from the date of shipment to the Buyer (the "Warranty Period"), Medical Solutions, Inc. ("MSI") warrants that the Equipment provided to the Buyer shall be free from defects in workmanship and materials. In the event of a breach of this warranty during the Warranty Period, MSI shall, at its option, repair or replace the Equipment. Buyer's remedies are limited to such repair or replacement.

MSI DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL MSI BE LIABLE FOR DIRECT, INDIRECT, PUNITIVE, ECONOMIC, CONSEQUENTIAL OR OTHER DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS.

To enable MSI to administer the Warranty properly, Buyer shall (1) register the Warranty using the form provided below within thirty days of receipt of Equipment, and (2) promptly notify MSI of any claim hereunder. As a condition to the Warranty, Buyer shall use and maintain the Equipment according to the provisions of the Operators Manual.

A.1 IMPORTANT: THIS IS YOUR T°HOLD® WARRANTY REGISTRATION

Please register your Warranty by copying this page, providing the requested information, and sending the completed form to Medical Solutions, Inc. within thirty (30) days of purchase.

<table>
<tr><td>Hospital Name:</td><td colspan="6"></td></tr>
<tr><td rowspan="2">Mailing Address</td><td>Street Address:</td><td colspan="5"></td></tr>
<tr><td>City:</td><td></td><td>State:</td><td></td><td>Zip Code:</td><td></td></tr>
<tr><td rowspan="2">Contact Name:</td><td colspan="6"></td></tr>
<tr><td>Phone:</td><td></td><td>Email:</td><td colspan="3"></td></tr>
<tr><td>Date Purchased:</td><td colspan="6"></td></tr>
<tr><td>Serial Number:</td><td colspan="6"></td></tr>
<tr><td>Department Purchased For:</td><td colspan="6"></td></tr>
</table>

COPY THIS PAGE AND MAIL, FAX, OR EMAIL TO:

Medical Solutions, Inc.
ATTN: Warranty Supervisor
3901 Centerview Drive, Suite L
Chantilly, VA 20151

FAX NUMBER: 703-834-0039

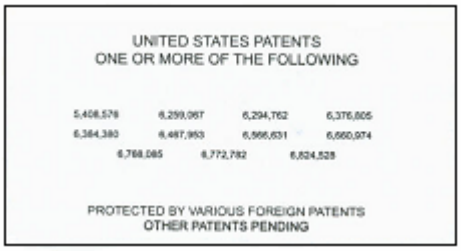
EMAIL: msi-warranties@warmiv.com

APPENDIX B: PRODUCT LABELS LIST

Label: UL and/or MET Listing
Location: Back of Heater Plate & Power Box

Label: Electric Shock Symbol
Location: Back of Heater Plate, Back of Power Box & Inside Power Pox

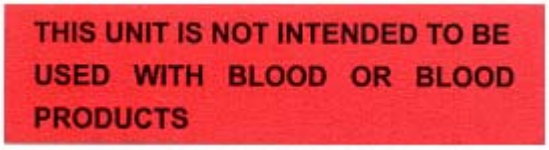
Label: Made in the USA
Location: Top of Power Box



Label: United States Patents
Location: Back of Power Box & Back of Heater Plate

Label: Factory Pre-Set
Location: Front of Heater Plate

Label: Caution: Hot
Location: Front of Heater Plate



Label: Not Intended for Blood or Blood Products
Location: Front Bottom of Power Box

Label: Fuse
Location: Bottom Side of Power Box

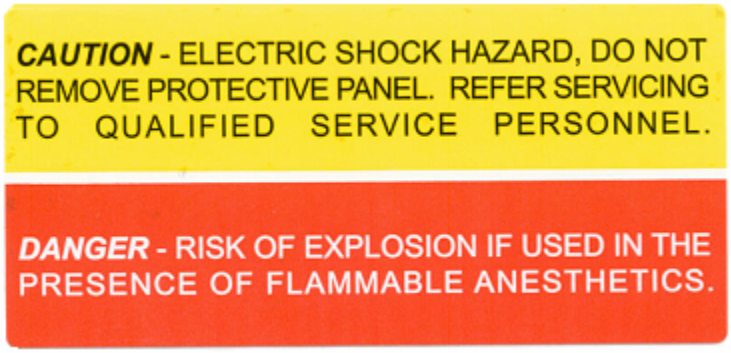
Label: Do Not Open
Location: Left Upper & Bottom Front of Heater Plate

Label: Verify Temperature
Location: Front Bottom of Power Box

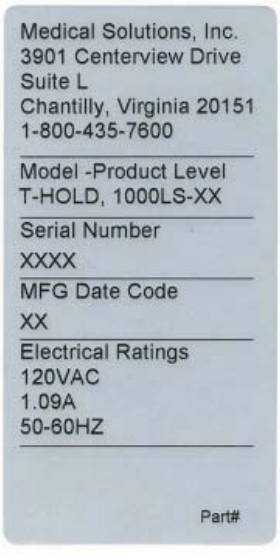
Label: Ground
Location: Inside Power Box & Inside Heater Plate

NOTE: GROUNDING RELIABILITY CAN
ONLY BE ACHIEVED WHEN THIS
EQUIPMENT IS CONNECTED TO AN
EQUIVALENT RECEPTACLE MARKED
"HOSPITAL ONLY" OR "HOSPITAL GRADE"

Label: Ground Reliability
Location: Back of Power Box


CAUTION - ELECTRIC SHOCK HAZARD, DO NOT
REMOVE PROTECTIVE PANEL. REFER SERVICING
TO QUALIFIED SERVICE PERSONNEL.
DANGER - RISK OF EXPLOSION IF USED IN THE
PRESENCE OF FLAMMABLE ANESTHETICS.

Labels: Electrical Shock Hazard & Risk of Explosion



Label: Model/Serial Number
Location: Side of Power Box